CLAIMS

1. A computer-implemented method comprising:

providing an input device that translates a set of user movements into a corresponding set of input signals;

empirically determining user input action statistics associated with the input device, a set of representative users, and the set of user movements;

providing input data corpus information representing patterns of signifiers expected to be communicated by users using the input device;

selecting an interface map that maps the set of input signals to a corresponding set of signifiers constituting the patterns of signifiers;

and

calculating a peak expert input rate from the user input action statistics, input data corpus information, and interface map.

2. The method of claim 1 wherein the user input action statistics are *n*-action statistics that comprise, for each ordered *n*-tuple of distinguishable user input actions, a time to perform a last action of the *n*-tuple after performing a first action of the *n*-tuple, where *n* is an integer greater than or equal to two.

3. The method of claim 1 wherein the user input action statistics are bi-action statistics that comprise, for each ordered pair of distinguishable user input actions, a time to perform the second action immediately after performing the first action.

4. The method of claim 1 wherein the bi-action statistics are represented as a bi-action table of K^2 time values, where K is a total number of distinguishable user input actions.

5. The method of claim 1 wherein empirically determining user input action statistics comprises performing empirical measurements involving the set of representative users performing the set of user movements using the input device.

6. The method of claim 1 wherein the empirically determined user input action statistics are independent of any particular interface map for the input system.

7. The method of claim 1 wherein the empirically determined user input action statistics characterize the physical actions of users interacting with the input device, independent of how the set of user movements are translated to signifiers.

8. The method of claim 1 wherein the input data corpus information comprises n-gram statistics representing how often each ordered n-tuple of signifiers appears in the input data corpus, where n is an integer greater than or equal to two.

9. The method of claim 1 wherein the input data corpus information comprises bi-gram statistics representing how often each ordered pair of signifiers appears in the input data corpus.

10. The method of claim 1 wherein calculating the peak expert input rate comprises calculating a mean n-gram execution time by summing, over a set

of ordered *n*-grams, a product of a predicted probability that a user will enter a given *n*-gram and an empirically-determined *n*-action time for an *n*-action corresponding to the given *n*-gram.

11. The method of claim 1 wherein calculating the peak expert input rate comprises calculating a mean bi-gram execution time by summing, over a set of ordered bi-grams, a product of a predicted probability that a user will enter a given bi-gram and an empirically-determined bi-gram time for a bi-gram corresponding to the given bi-gram.

12. The method of claim 1 further comprising calculating peak expert input rates for multiple interface maps, and identifying at least one interface map having an optimal calculated peak expert input rate.

13. The method of claim 1 further comprising executing an optimization strategy to search for an optimized interface map.

14. An input system comprising an input device that translates a set of distinguishable user movements into a set of unique input signals, together with an interface map mapping the input signals to a set of signifiers, wherein the interface map is determined using the method of claim 12.